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ABSTRACT

Changes in the workplace have raised the level of literacy needed by workers to full twelfth grade at least and outstripped manufacturers' ability to retrain workers. Even workers with high school diplomas may not be able to read. Although defined as literate, 40 percent of workers cannot meet the demands of the new technology. In order to achieve the productivity gains offered by innovative electronic technology, a major commitment to workplace literacy programs must be made. The following actions should be taken to develop a successful workplace literacy program: (1) assess the skills of the work force and identify levels of attainment in such areas as reading and mathematics; (2) conduct a job analysis, if necessary, to determine needs of employee groups; (3) develop a curriculum that includes reading, writing, speaking, listening, mathematics, and computer literacy; (4) identify services to be delivered; (5) develop, conduct, and evaluate a pilot project to determine effectiveness in the work group and workplace; and (6) revise and implement a full program. (KC)

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WORKPLACE LITERACY:
RAISING THE FLOOR OF EDUCATION IN THE WORKPLACE

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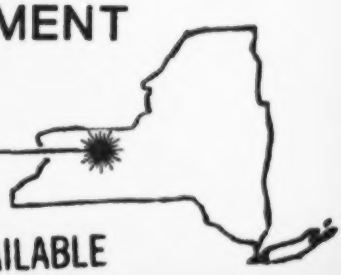

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WORKPLACE LITERACY:
RAISING THE FLOOR OF EDUCATION IN THE WORKPLACE

by David M. Mathes

Presented at the American Association for Adult and Continuing Education
1988 Conference November 2,1988

The American work force is in grave jeopardy. We are running out of qualified people. If current demographic and economic trends continue, American business will have to hire a million new workers a year who can't read, write or count Today we need people who are not only proficient in the basic skills, but who know how to think and communicate what they're thinking. We need people who can adjust to change, who can absorb new ideas and share them easily with others."

– David Kearns, chairman and CEO of Xerox in a speech to the Commonwealth Club of California, July 10, 1987[1]

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WHY WORKPLACE LITERACY?...WHY NOW

The PLUS literary campaign (a project jointly developed by PBS and ABC) has focused attention on the issue of literacy in the workplace. Dennis Weaver starred in the presentation of a television special on the issue called "Bluffing It". The story focused on a middle aged man who could not read. He had to turn down a promotion in the plant because of his inability to function with the new technology. His wife had helped him for years and he had been able to hide the problem effectively during this time. The rush of the need to become literate to the new technology and the new skills , however, was such that he could no longer keep up. While this film effectively presented the issue of the person at the 'lowest end of the scale' it did not deal with the person who falls into the middle need of being able to function at a full 12th grade level without regard to their high school diploma status.

It is , after all, the dynamic of the marketplace that has focused our attention on the basic skills of the worker. What has become known as workplace literacy had its beginnings in the technology surge of the 70's. One Motorola executive remarked that "the technology is changing faster than our ability to train for it". It has been noted that in the shift from the mechanical driven workplace to the knowledge driven workplace that we must now put (as the Plant Manager of AC Rochester stated) "Put minds on the job." The materials that accompany the new robotic equipment is often written at the 14th or 15th grade reading level. Comprehension of the material demands techniques of the production worker never before demanded. Participatory management, work cell environments, and other new communication patterns demand levels of Oral Communication and Listening Skills that haven't been needed and used in the workplace. We are moving from a Taylor oriented 'top down' model of management to a more horizontal structure. Finally, the ever increasing need for mathematic skills has been driven by the quality control and productivity sector of manufacturing. We are looking to a time, in the very near future, when a small group of workers (in a work cell) will be totally responsible for the productivity of the cell. The skills demanded of the workers will include purchasing of supplies and raw materials, sub contracting and negotiating with other cells within the company as well as outside suppliers, operation and repair of machinery, and reporting results throughout the corporation. "The U.S. has lost much ground to competitors, and investing in people looks like the way to retake it. After years of neglect, the problem of human capital has become a crisis...America, in short, has been scrimping on human capital. After trying to solve its serious competitiveness problems by pouring hundreds of billions of dollars into capital equipment, the country is discovering that it has been blindsided when it comes to workers....The evidence is overwhelming that people, not machines, are the driving force behind economic growth."[2] Tom Peters indicates, " Work-force training must become a corporate (and indeed national) obsession. It is not. And it is on this variable that the outcome of the overall competitive struggle may most strongly depend."[3]

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I was called into a New York company recently to begin to develop a program in Statistic Process Control (SPC). The training manager confidentially related the following story: "We took a look at the workers in the plant and decided that if we were going to continue to be a supplier to (Company A) that we would have to implement SPC. The Manager purchased some new computer equipment so that the company wouldn't have to rely on the production workers to do the math. "The funny thing was that when we put the program to work in the plant one of the men who had to put values in the machine made a simple keyboard error. What wasn't funny was how much this error cost the company. It was tremendous! What made it even worse, was that the operator had no idea what the correct value was suppose to be because he had no training in SPC.... that's why we need you here."

In yet another SPC situation a company started SPC training with a selected population of production employees in a plant. After the first two hours of instruction and while the students were on a break the teacher came into the educational coordinators office complaining of the need to change the program because the students "didn't even know basic math." Meanwhile, a group of technicians were enrolled in a "technical" communications class which looked very much like a basic writing course.

"In one company a worker who did not understand how to read a ruler mismeasured sheet steel and lost the company $700 worth of material one morning."[4]

and in another case a worker was reported killed because of an inability to read warning signs.[5]

Meanwhile, the service sector reports: "Mutual of New York estimates that 70% of its dictated correspondence has to be done over at least once because of errors. More and more secretaries have $9,000 mag card machines
that can triple their typing speed--but too many can't spell or punctuate. Their vocabularies are not equal to the needs of the business. For that matter, many have trouble understanding the instruction manuals that come with all that exotic equipment. And what does it do for a company's image if a secretary tells a caller 'my boss ain't here.'"[6]

Have these basic skills problems just appeared or have they been around for a long time? The AC Rochester Products Plant Manager indicated that,"we used to think of production workers in terms of bodies on a job..now we have to think of these same workers as minds on the job...this is a whole new way of dealing with our workforce." When skills required in the workforce were primarily mechanical and the only test was for 'manual dexterity' the worker placed on the job did not have to perform with high levels of math skills. "As the society becomes more complex, the amount of education and knowledge needed to make a productive contribution to the economy becomes greater. A century ago, a high school education was thought to be superfluous for factory workers a a college degree was the mark of an academic or a lawyer. Between now and the year 2000, for the first time in history, a majority of all new jobs will require post-secondary education."[7]

However, the 'MANUFACTURING EXCELLENCE' movement has changed all that. " Industry now demands higher levels of attainment in basic education than ever before. Advancing technology brings higher skill requirements. Prospective employers how place greater emphasis on 'credentials.'"[8] As we try to be more productive the levels of skills in the workforce must change. This is compounded by increasing labor shortages which are projected to only get worse into the year 2000. <u>The result is a mismatch between the skills that workers hold and the skills that are needed in the new manufacturing (and service) workplace.</u> Some companies are responding to this need by laying-off and dislocating their current workforce without current state-of-the-art skills and recruiting other workers who possess the skills needed in the 'new workplace.' One such major New York producer of television tubes wanted to upgrade equipment , eliminate the union, and discard its current workforce for a new one with higher mathematic skills. The conversation between the company and local and state officials went something like this....

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Company official: " O... offered us $5 million for new equipment as a grant and promised us another $5 million in training funds."
Legislator: "What kind of funds?"
Company:" A UDAG grant and JTPA funds"
State Commerce Representative: "UDAG is a Federal loan program... you have to pay it back."
Company official:" No that's not true we don't. O... told us."
Regional Education Center: "And the JTPA program doesn't allow you to rob jobs from one state to another."
Company official: "Well... we have another 700 jobs in O... that we want to move to New York. What can you do for us in the same way?"

Regardless of the morality of the company involved it was clear from the session that the company was interested in new technology and equipment and a new workforce. <u>What kind of society do we want? One that walks away from its workforce at the drop of a hat or one that can be trained for the new and emerging needs?</u>
"How much of U.S. industry's much-publicized productivity problem could be traced back to workers who don't read very well?"[9]
While some industry abandons its workforce others, (such as those mentioned in this paper) have taken the aggressive response of providing basic (and sometimes) not so basic) education for their employees to upgrade the employee skills to those needed by the new workplace.
"Employees become more flexible, more clearly understood, can handle math and blueprint assignments, can follow directions, can express ideas and suggestions, the list goes on." indicated Bud Holler Vice-President of Local 1097 UAW in Rochester, New York.[10]

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Current data from the U.S. Census Bureau indicates that 27 million adult Americans can't read and another 30 million are functionally illiterate while each year another 2.3 million people are added to that total . "Setting the standards still higher- closer to a high school reading level, which would include the ability to read technical manuals in industry and the military... we find that 72 million americans would be classified as illiterate."[11]

The 1974 National Advisory Council on Adult Education (NACAE) data suggests that 41.1% of New York adults have not graduated from High School.[12]

This information and data also has an affect on the workforce. In manufacturing where manual dexterity positions are being replaced by higher level production positions requiring Statistic Process Control knowledge, metrics and blue print reading skills, and technical writing skills, these workers are finding it difficult to cope.

LEVELS OF LITERACY

A single standard for literacy does not exist and there is disagreement about the levels of literacy and what might be included under each level. "Someone who can't read or write at al is considered ILLITERATE. Someone who can't read or write well enough to function competently in society is considered FUNCTIONALLY ILLITERATE...someone able to get by but not able to perform all the tasks associated with full citizenship , including reading the daily newspaper would be MARGINALLY LITERATE.[13].

The workplace has added another level of literacy under the category MANUFACTURING LITERACY .This is roughly defined as the ability to read and write at the twelfth grade level, to speak and listen with clarity and understanding in a team or work group, to have mathematic skills at a twelfth grade level sufficient to handle SPC problems, to have problem solving skills, and to have basic computer literacy skills.(While it may be more difficult to define such skills clearly for the service workplace the basics of the hospitality industry would clearly include high level communication skills, computer skills, and mathematic skills similar to those named above.) "Ron Bradley, director of corporate training for Blue Cross Blue Shield of Massachusetts, finds that clerical workers tested for promotion, 50% read below a median 12th grade level and some as low as an eighth-grade level. A supervisor's job requires a 12th-grade capacity."[14] Manufacturing literacy and its more generic counterpart 'workplace literacy' may look similar to general basic literacy but they differ in intent. While general literacy looks to the general development of the individual Workplace Literacy seeks to meet the goals of the individual and the employer at the same time. That is to say, the driving force behind mathematics training will be to solve SPC problems. Oral communications skills and listening will be directed to the needs of the work cell and the work environment and reading comprehension will be driven by the new technical manuals that have been purchased by the company.

Part of the problem may be "there is a considerable gap between the literacy demands encountered in schools and those encountered in the workplace. Unlike school literacy, over 80% of workplace reading and writing serves the purpose of helping to accomplish specific tasks."[15]

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THE CHALLENGE

There is a shift taking place in American industry and in the service sector...a notching up.... of the floor of basic skills. Additionally, basic has been redefined in the workplace to mean those skills at the twelfth grade level as a minimum. (This is because of the productivity capacity and the demands of competition both foreign and domestic). The jobs are changing so rapidly that the conventional wisdom that a product has three years from concept to marketing and a life of seven or more years has been replaced with knowledge that the product might have to be brought to market within six months and will have a life of only eighteen months. The new basic skills include reading, writing, speaking, listening, and computation at the twelfth grade level and the additional skills of problem solving and computer literacy. Without these skills the worker is found to be limited in potential assignment and task.Although we must focus on those in the workplace who do not have fundamental literacy skills and an inability to read and compute at the lowest levels the above has implications toward the entire effort to upgrade workers including those who do not have adequate English speaking skills such as "Vladimir, a millwright who is unable to use his skills in the plant because his command of English is not acceptable to management."[16] and others who for whatever reason may have lost skills that they had at one time. Betty Fenton of B. Dalton Bookseller related a story about the consequences of being illiterate in the American society as a result of a trip to Syracuse, New York. "I was a guest on a television panel along with a woman who was a student in the Lauback project. This woman was 42 years old, a high school graduate and the mother of two children,and yet she could not read their school notices, or even read them a bedtime story. She told how when her son brought home a school notice she would call the school and tell them ' my son dropped this yellow sheet in the mud puddle or ran over it with his bike or got peanut butter and jelly over it, what did this piece of paper say?' She told how she watched television religiously so she would have brand identification when she went shopping. The saddest was when she unintentionally poisoned her young daughter , giving her pink liquid soap which she mistook for Pepto Bismol."[17]

What clearly has emerged is that it is not only the population of people that do not have a high school diploma that is at risk. There is a significant portion of the workforce that may have a high school diploma but lack one or more of the identified basic skills ."One person in five is dysfunctional in at least one basic skill. High School completion is not a prediction of success on the job. And the rate of technological change has become so rapid and so sophisticated that we cannot anticipate what people will need to know many years before the fact.[18] Not a great deal of research has been done on specific levels of literacy in the workforce and the needs in a specific workplace. Most of the work that has been done has been done with the military. Larry Mikulecky has studied the workplace in the military and elsewhere and determined "Most occupations require a high level of basic skills, although the applications of these skills may be diverse. The workplace requires not only the ability to read, write, and compute, but also the ability to use these skills in problem solving on the job."[19]

The emerging workplace is such, however, that providing a very specific connection of literacy skills to specific job tasks may not be productive since much of the work is undergoing change anyway.That is to say, that a generic approach that includes the elements of reading, writing, speaking, listening and mathematics with decision making skills and basic computer literacy to at least the 12th grade level with a general workplace orientation might be a much more effective use of employee time and enhance the cost effectiveness of the total effort.

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The costs of the workplace literacy effort in the U.S. might be quite high since it is estimated that up to 40% of the workforce in America must have involvement in basic workplace literacy at some level.What is much more important is the cost benefit of such an effort to the bottom line to American industry as a whole. The worker who is productive in the workplace can save a company a great deal of money while a worker who (through lack of basic skills) makes a workplace mistake that could be avoided could be quite costly to his or her company. Research shows that only a small percentage of funds for training is spent for basic skills and much of this is spent on English as a Second Language training. Rosalyn Stoker of Polaroid became aware of the basic education need when she found that a number of Polaroid employees couldn't take advantage of the tuition assistance benefit plan because of their lack of basic skills. The program was then revised to include instruction in basic skills for that employee group. Union leadership cautions,"<u>while this is very important to our members don't use the term literacy in presenting the program</u>." It is the feeling of unions and companies alike that while we may provide services in workplace literacy we should use other terminology in the effort. Also, the workplace literacy effort not only is remedial in nature it also has as part of its design the presentation of new skills (such as computer knowledge) that may not have been part of the curriculum when many in the workforce left school. Program focus such as "Technical Writing", "Technical Education Preparation", and "Technical Math" will provide attention to the content without the 'literacy' label.

The needs of the workplace differ from company to company. The needs of a heavy manufacturer who relies on 'older' technology is markedly different from the needs of a high tech manufacturer of automobile computer modules. Likewise, the needs of a hospitality tourism industry that accents communication skills and listening skills are quite different from those of a small business in computer retail sales. One skill that has now become pervasive throughout all of the industries mentioned is computer related skills and computer related technology. The marked shift from the typewriter to the wordprocessor and computer clearly marks, in a dramatic way, the shift from old to new technology in just the past few years. Projections of jobs of the future call for greater attention to technology and greater development of the basic skills of reading comprehension, writing, mathematics, computer literacy, oral communications and listening at levels exceeding the 12th grade level and cannot be seen as static. <u>We must raise the floor of basic skills in the workplace to at least the 12th grade level.</u> Workplace literacy is nothing more than a new "box of tools" to prepare the worker for the new and emerging jobs. It would not be productive for any company to allow its workers to attack the jobs of tomorrow without their basic tools. In today's and tomorrow's society, reading, writing, speaking, listening, mathematics, problem solving, and computer literacy have clearly become the tools of literacy in the workplace.

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WHAT IS NEEDED

*** ASSESS THE SKILLS OF THE WORKFORCE AND IDENTIFY THE LEVELS OF ATTAINMENT IN AREAS SUCH AS READING AND MATHEMATICS WHERE POSSIBLE.**

a. All training proposed should be identified in terms of upgrade as part of the 'new' thrust for training in the company.
b. Workers should be seen as a strategic resource that must be kept at the cutting edge.
c. Identify generic skills in reading, writing, speaking, listening, and mathematics in general grade level equivalents so that the company and the educational agency have a common measure but do not communicate these levels to employees. "Treat your training assessment as the essence of strategic opportunity. If you don't spend as much time on this assessment as on the evaluation of the capital budget, you have missed the point..."[20]

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* **CONDUCT A JOB ANALYSIS (IF NECESSARY) TO DETERMINE NEEDS OF THE EMPLOYEE GROUPS.**

a. break down and translate job skills into basic generic skills (i.e. Basic Statistic Process Control skills = Algebra skill solving for a variable, Blue Print Reading = Simple Geometry angles, triangles, etc. Report Writing = written communication skills ; writing a five paragraph essay)

b. Determine the changing nature of the job. What new technology is likely to be applied. (i.e. Computer skills)

c. Can the problems be solved in generic classes, firm specific classes?

d. Does the operator need other non specific skills to function. (i.e. Speaking, oral communications, problem solving, listening) ("Reading and writing are essential communication tools, but it is through listening and speaking that we interact most frequently. The average person spends 8.4% of communications time writing, 13.3 % reading 23 % speaking, and 55 % listening."[21]

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*** DEVELOP A CURRICULUM OF INSTRUCTION AND SERVICES TO BE DELIVERED.**
-MINIMALLY IN THE AREAS OF READING,WRITING, SPEAKING, LISTENING, AND MATHEMATICS- (INCLUDE COMPUTER LITERACY).

a. Materials developed should be prepared specifically for workplace settings and not be high school, or standard ABE, GED, ESL material as the 'one size fits all' approach.
b. Structure of the materials should include:
1. the concept to be learned.
2. explanation of the concept.
3. workplace examples (designed for the specific workplace)
4. text references for drill and practice.
c. Optimum time frames for the instruction should include some paid or release time for instruction and off-time non paid time for instruction as well as homework.
d. Caution: companies should not plan on a quick fix two or three week solution. Instead be realistic about the needs of the worker over the long term.

Note: The Finger Lakes Regional Education Center For Economic Development (phone 716-526-6438) has developed specific curricula for Workplace Literacy in the areas of Reading and Writing, Oral Communications, and Mathematics. It is developing an assessment instrument matrix for the above and is adding workplace formal communications, a second level Mathematics program, blue print reading, computer technology, and decision making to the curricula available. All materials will be made available to ERIC.)

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e. Provision should be made for:
1. The worker without a high school diploma.
Our experience indicates that this is between 20-40% of the workforce in manufacturing industry.
2. The worker with a diploma but who functions below the desired level. (i.e. 12th grade level)
Our experience indicates that an additional 40% of the workforce can fall into this group.
3. The worker who does not speak English as the primary language.
Although this can vary from region to region we have found up to 15% in this group in major mature industries.
4. The worker with special needs on the job.
Some workers have 'learning' problems that will need special attention by training. The largest area here is in the area of 'self-esteem'. Counseling is important in workplace literacy efforts.

f. Do not focus on only one skill area (such as Mathematics for Statistic Process Control) to the exclusion of the others (reading, writing, speaking , listening) as they all work together. We have seen several examples of companies that tried to focus only on Math skills and had to 'back-up' and provide oral communications and reading training to the workforce.

g. Make provision for the 'new' basics of decision making and computer literacy.

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* IDENTIFY SERVICES TO BE DELIVERED.

a. Determine the number of hours each week that can be devoted to the effort. Some models include:
1. Full Time: With Paid-time-off for attendance by employees.
2. Part Time: With Paid-time-off for attendance by employees.
3. Shared Time: 1/2 of the time paid-time-off and the other on employees time.
4. Volunteer Program: on employees time.
5. Tuition reimbursement : on employees time.

b. Develop time lines for the training growth:
1. allow for the grade level differences of workers entering at different grade level equivalents. (some workers might perform at the 12th grade level in Math and a lower level in reading or speaking)
2. Be realistic: this may take time. There is no quick fix.
3. Benchmark progress for students and put in reward steps.

Our experience has shown that models that have at least a sharing of 50% "on the clock" are the only successful models that meet the company goals. Otherwise the ability spread continues to be a problem for the companies.

c. Delivery of services depends upon:
1. high quality instruction by qualified instructors who have experience working with adults. Not every high school teacher can deliver to this audience. If practical expose the instructor to the workplace setting so that understanding by the instructor of workplace requirements can affect delivery of instruction.
2.materials should be designed for the workplace and include examples that can be applied to the shop floor when the worker returns to the workplace. (Thomas Sticht and Larry Mikulecky found this is important to the success of training in the workplace.)
3. Supervision, monitoring and evaluation of training are a must.
4. The Department head and supervisor who releases the worker for training must clearly understand the commitment so that they do not hold workers from training scheduled.
5.The manner of introduction of the concept at 'Technical Preparation' rather than workplace literacy is important to deal with the needs of the individual in the workplace.

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* **DEVELOP,CONDUCT, AND EVALUATE A 'PILOT' PROJECT TO DETERMINE EFFECTIVENESS IN THE WORK GROUP AND WORKPLACE ONLY IF IT IS NECESSARY.**

(it is suggested by Richard Schonberger in his lecture on World Class Manufacturing that pilots are not necessary unless you want to also delay results)

a. Determine measures of effectiveness to be applied:

1. What is the impact on productivity?

2. What is the impact on employee moral?

3. What is the impact on workplace measures. (i.e. reports and reporting, communications, statistic process control charts.)

b. Provide rewards for workers who participate in programs such as certificates of completion. (for those without a high school diploma obtaining the GED is a reward)

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*** REVISE AND IMPLEMENT A FULL PROGRAM**

a. keep track of individual worker progress.
b. measure quality of delivery on an ongoing basis.
c. In volunteer and Share time programs monitor the off-time delivery for drop off of employee involvement.

It is important to be driven by both the needs of the individual and the needs of the company. There are attitudes that must be accommodated in the training. For example, one manager spoke of the program in this manner: "I got my high school diploma on my own ...and they can get theirs...why do I have to help them?" True! but at the same time the manager complained, "We have to get all of our people up to speed so that we can do SPC." What the manager refused to see was that the two notions are tied together. If you want your people 'up to speed' you have to be willing to assist in the development. At the same time they might be able to get a GED, a High School Diploma, Learn English, or other skills and that should be OK.

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ENDNOTES

1. "The Skill Gap:America's Crisis of Competence."TRAINING,Vol.24 No.12, Lakewood Publicatio Inc.,Minneapolis,1987,pp.27.

2. "Needed:Human Capital,BUSINESS WEEK,September 19, 1988,pp.100-101.

3. Peters, Tom, THRIVING ON CHAOS, Alfred A. Knopf, New York, 1987,pp.323.

4. "Basic Skills in the U.S. Work Force", The National Center for Research in Vocational Education, Oh State University ,Columbus,1982,pp.25.

5. Mikulecky and Sticht, JOB RELATED BASIC SKILLS: CASES AND CONCLUSIONS,ERIC Clearinghouse on Adult, Career, and Vocational Education, The National Center for Research in Occupation Education,Ohio State University,Columbus,1984,pp.7.

6. Torrence, David R. and Torrence Jo. Ann, "Training in the face of Illiteracy",TRAINING AND DEVELO MENT JOURNAL, August 1987,pp.44.

7. Johnson, William B.,WORKFORCE 2000,Hudson Institute,Indianapolis,1987.pp.XXVII.

8. Duggan Paula, LITERACY AT WORK,Northeast-Midwest Institute The Center for Regional Policy,pp.v.

9. Lauterborn, Robert F., READING:WHY INDUSTRY CARES AND WHAT ONE INDUSTRY IS DOING ABOUT IT, International Reading Association Annual Convention, New Orleans, 1981,pp.63.

10. SCHOOL ON THE JOB: TIPS ON HANDLING WORKPLACE LITERACY PROGRAMS, Business/ New York,January 1988,pp.29.

11. Challerron, and Hilferty,"Adult Literacy:New and Enduring Problems",PHI DELTA KAPPAN, Novemb 1987,pp.191

12. Hunter, Carmen St. John, and Harman, David, ADULT ILLITERACY IN THE UNITED STATES, McGraw-Hill, New York,1985,pp.38.

13. "Guidelines for Developing an Educational Program for Worker Literacy",THE COMMONWEALTH O MASSACHUSETTS,EXECUTIVE OFFICE OF ECONOMIC AFFAIRS OFFICE OF TRAINING AND EMPLOY-MENT POLICY, JULY,1986

14. Ross, Irwin,"Corporations Take Aim at Illiteracy", FORTUNE,September 29,1986,pp.49.

15. Mikulecky, Larry,"Literacy Task Analysis:Defining and Measuring Occupational Literac Demands",INDIANA UNIVERSITY, March 31, 1985.,pp.1.

16. List,Wilfred,"Using Workplace to Tackle Illiteracy,Educational gaps is growing in importance",GLO AND MAIL,TORONTO,January 25,1988,pp.B4.

17. OVERSIGHT HEARING ON ADULT ILLITERACY:Hearing before the Subcommittee on Post-Secondar Education of the Committee on Education and Labor,House of Representatives,Ninety-Sevent

Congress,Second Session,December 1982,pp.26.

18. Lauterborn,Robert F.,READING:WHY INDUSTRY CARES AND WHAT ONE COMPANY IS DOING ABOUT IT, International Reading Association Annual Meeting, New Orleans,April 1981,pp.3.

19. Sticht,Thomas G., and Mikulecky, Larry, JOB-RELATED BASIC SKILLS: CASES AND CONCLUSIONS,Op Cit.pp.8.

20. Ibid. pp.329.

21. Carnevale,Anthony P. ,Leila J. Gainer, and Ann S. Meltzer,WORKPLACE BASICS:THE SKILLS EMPLOYERS WANT,The American Society for Training & Development,1988,pp.11.

AC ROCHESTER DIVISION OF GENERAL MOTORS

In the spring of 1986 the Joint Training Committee of UAW/GM Rochester Products Division faced a series of problems which led to the development of a comprehensive Workplace Literacy program in Rochester. It included Adult Basic Education (ABE), English as a Second Language(ESL), General High School Equivalency (GED), a Technical Education Preparation Program (TEP) for employees with a high school diploma but who lack basic skills at the 12th grade level, a Transition program to college work (BRIDGE), and a Paid Educational Leave Program at the College Level (PEL). This program is probably the most comprehensive effort of one segment of industry in the United States today, as the workers in any segment of the program RECEIVE PAID TIME OFF while they attend any segment of the program. Over 1,000 of the 4,000 employees of the AC Rochester facility have taken part in the program.

Bud Holler is first vice-president of UAW Local 1097 and the Union representative on the local Joint training committee:

"Rochester Products (Now AC Rochester), has worldwide responsibility for designing, engineering, and manufacturing gasoline and diesel fuel-management systems and emissions control, and valve train components for GM vehicles, as wel as for other vehicle and engine manufacturers. We have been world leaders in the technology, production, and sale of carburators and have had very little competition. But as fuel injection systems gain in use and efficiency, we face stiff worldwide competition. The Rochester operations were severely impacted by GM's change in fuel systems technology. In early 1986 we reopened our local contract with the objective of finding ways to become more competitive, increase the plants business opportunities, and enhance job security. The innovative contract that we finalized.. and which received overwhelming approval by the membership.. provides the opportunity for substantial cost savings for the plant... Essentially, what we did in the new contract was to provide for a way to use people more efficiently through training and a reduction in classifications."

This reduction from 112 classifications to three levels of job responsibility (A,B,or C) is called the ABC concept. To accomplish this massive task, the efforts of the union and company had to be in agreement, as explained by Louise Paxton, the Supervisor of Employee Development and Training at AC Rochester, (representing the company side of the joint training committee).

"Most of the training required by this effort is within two major areas: 1) preparatory training, and (2) competency-based training to provide job-specific skills. We have institutionalized training by agreeing to provide competency-based training prior to the expansion of each employees job responsibilities, and the reduction of classifications. Bud and I were introduced to the skills of competency-based training in the summer of 1985 as we began our co-director roles for the Joint Skill Development and Training program at Rochester. We found that many employees are not equipped to participate successfully in the job-specific training for ABC certification. They need help in basic skills such as reading, writing, math, problem-solving, blueprint reading, measurement techniques, and others. Our experience tells us that this is absolutely essential in order to establish a foundation for learning. "

The resultant Adult Education Program (called AD ED) was provided by the efforts of a consortium of educational agencies and the Finger Lakes Regional Education Center for Economic Development. The joint education program under New York State Education Department Employment Preparation Education funding started in May of 1986. The educational efforts of this program initially provided ABE, GED, ESL classes offered by members of the consortium. <u>WHAT MADE THIS PROGRAM UNIQUE WAS THAT 200 PERSONS WERE PLACED IN A TEN MONTH FULL TIME PROGRAM WITH FULL WAGES AND BENEFITS PAID BY THE COMPANY.</u> The program was undertaken by a consortium of educational agencies that work with the Finger Lakes Regional Education center. The Center identified the Rochester City School District as the lead agency and included training by the Greece School District, Monroe I BOCES, and Monroe II BOCES. The goal of the first program was to move a significant number of the employees at AC Rochester towards their High School Equivalency Diploma, but to also seek attainment of 12th grade level skills. In October the Rochester City School District consolidated the program in the Westside Adult Learning

Center, which was a full time adult center, and at the time gained the nick name of "Rochester Products High." This program was largely possible because of the existence of the Jobs Bank at Rochester Products. "We were making a positive out of a negative situation...RPD is not at full production, and we have over 500 employees in the Jobs Bank. Because we have this bank, we can back-fill most positions vacated by employees who enroll in the program. In turn our employees come back with upgraded skills, pride, and self confidence", said Louise Paxton. Bud Holler demonstrated what the company got out of the program:

"It's a fact that we are going to competency-based training as part of the ABC Concept of our new contract. The company must have capable people operating the machines and the processes. So, the stronger the work force becomes in skills, knowledge, and education the better everything will run. Employees become more flexible, more clearly understood, can handle math and blueprint assignments, can follow directions and give directions, can express ideas and suggestions, the list goes on..." Holler continued," The employees gain from all of this, also... they become better able to pass the requirements of competency training. There are other more personal benefits such as pride, confidence and the effect on family. And they are every bit as important." Peter McWalters, superintendent of the Rochester City Schools believes that the program is almost visionary in concept and planning. He said "We must plan now for the careers of tomorrow. This program comes as a great opportunity." In February 1987 RPD-Rochester and Local 1097 UAW received an award from the New York State Education Department for 'Excellence in Occupational Education'. In presenting the award James Kadamus, Assistant Commissioner for Occupational and Continuing Education of the New York State Education Department commented,"Rochester Products is recognized as a leader in workplace literacy training."

In the Fall of 1987, the program made another expansion with the addition of two new elements. 200 employees who had a high school diploma but lacked basic skills, were enrolled in a new program on a full-time basis, to raise the level of their skills to the High School 12th grade level, through funding provided by the New York State Education Department Workplace Literacy Program. This program mirrors the efforts started earlier that was limited because of the inability to fund high school grads. Additional elements of basic computer literacy, math at the higher 12th grade level, and oral communication skill development were added to both programs at this time. While testing and assessing the skills of the workers, another group was identified that could possibly take advantage of college learning opportunities, if a transition or bridge was made. 256 workers enrolled in the BRIDGE program through Employer Specific funding (ESSTG) provided by the Finger Lakes Regional Education Center for Economic Development. These 256 employees then went on full-time paid leave to extend their learning.

To date, 604 enrolled in the Adult Education Program provided with EPE funding, (ABE,GED,ESL), and the Technical Education Preparation Program, (12th grade skill level), funded with New York State Workplace Literacy funds, with over 225 receiving a high school diploma. Over 270 entered the BRIDGE and PEL programs. At the moment, only 63 persons remain in the (ABE,GED,ESL) Adult Basic program, with new employees entering the TEP and PEL programs.

Michael Chapman, the plant manager, indicated "The program not only helped employees better understand the retraining but also improved their productivity. The plants costs declined 15 percent in the year that ended in September 1987...I can't say the training was directly responsible, but I know very well that it was responsible for a portion of it." Bud Holler stated,"We are now attracting new products from AC... it is the skill level of the workforce that does it.. and we're doing it!"